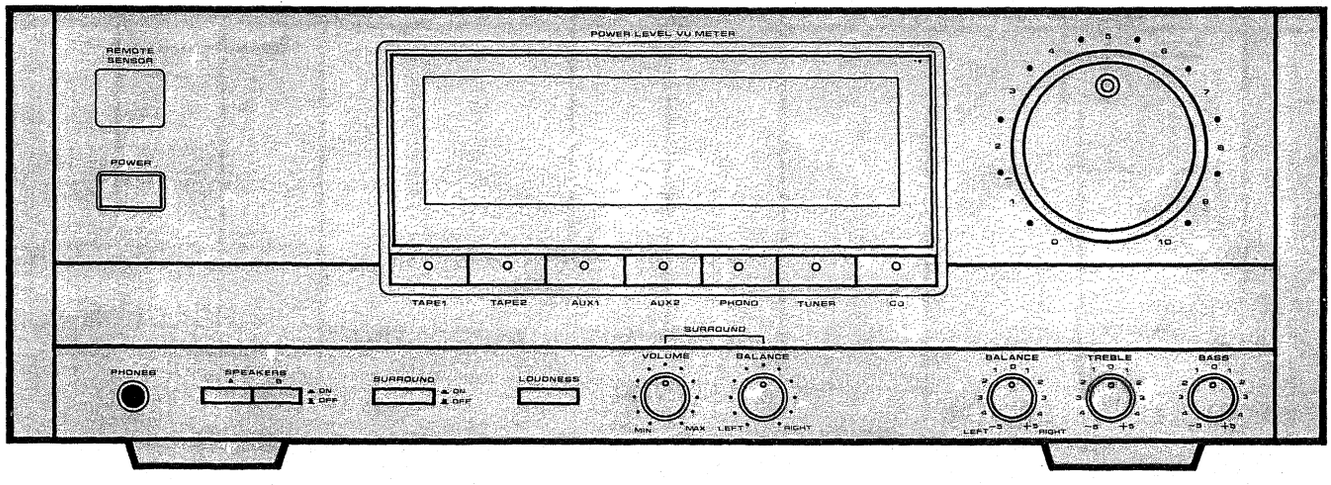
SERVICE MANUAL

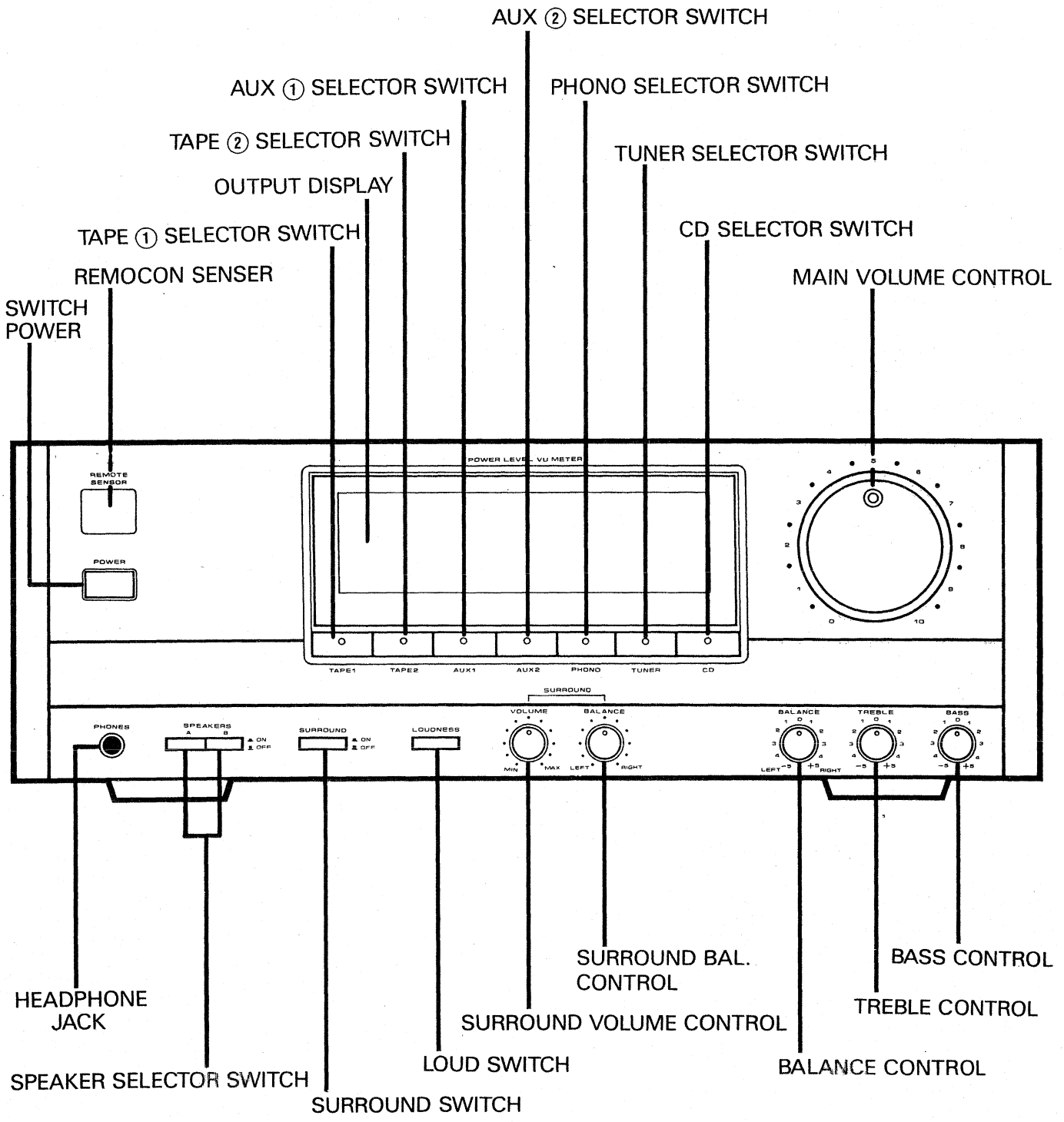
ACS-79A
(A 600R)

STEREO INTERGRATED AMPLIFIER

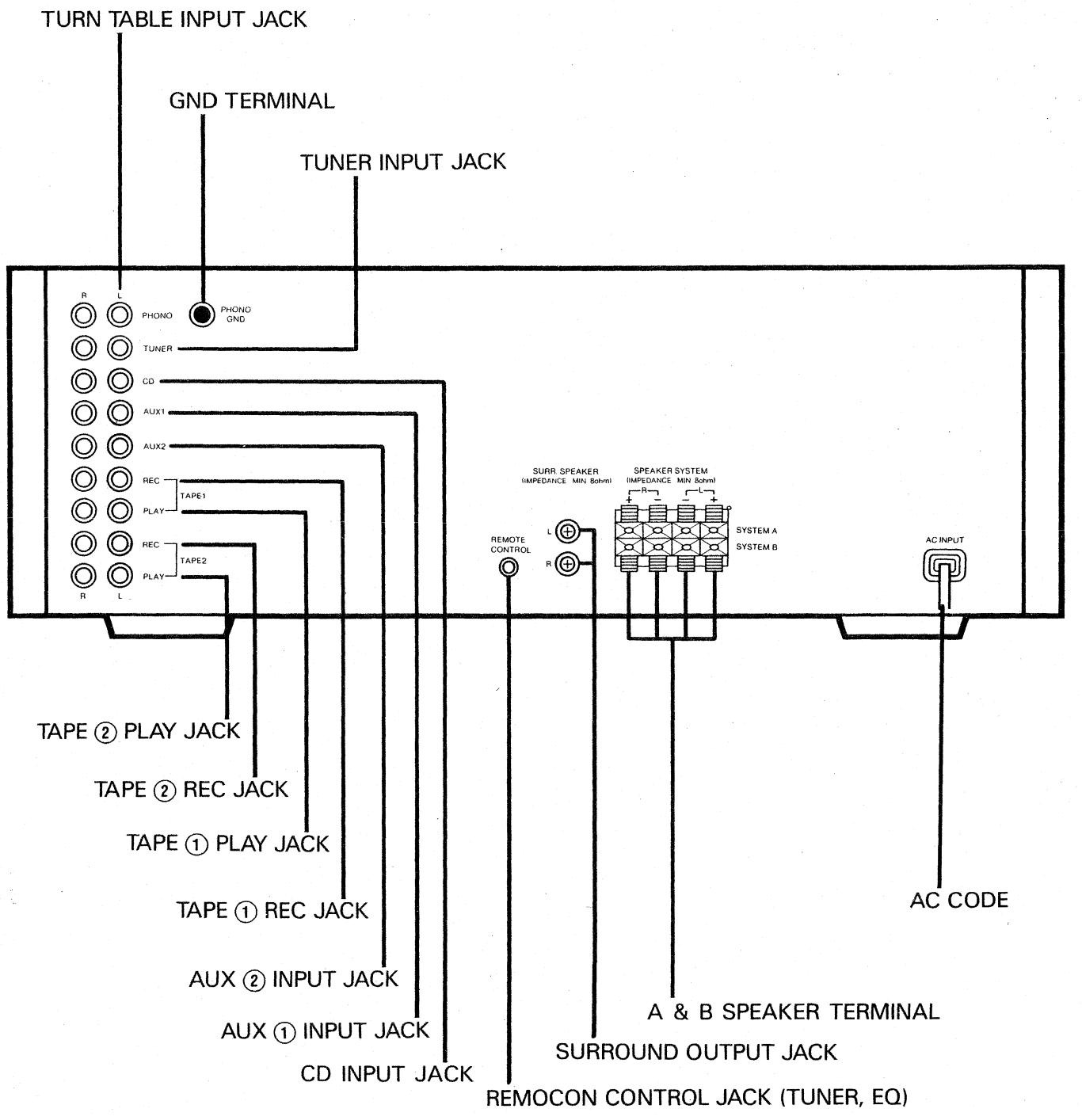


1. CONTROL FUNCTION

■ FRONT



■ BACK


TURN TABLE INPUT JACK
GND TERMINAL
TUNER INPUT JACK
R
L
PHONO
PHONO GND
TUNER
CD
AUX1
AUX2
REC
PLAY
TAPE1
REC
PLAY
TAPE2
R
L
SURR SPEAKER (IMPEDANCE MIN 8ohm)
SPEAKER SYSTEM (IMPEDANCE MIN 8ohm)
REMOTE CONTROL
L
R
SYSTEM A
SYSTEM B
AC INPUT
TAPE ② PLAY JACK
TAPE ② REC JACK
TAPE ① PLAY JACK
TAPE ① REC JACK
AUX ② INPUT JACK
AUX ① INPUT JACK
CD INPUT JACK
REMOCON CONTROL JACK (TUNER, EQ)
SURROUND OUTPUT JACK
A & B SPEAKER TERMINAL
AC CODE

2. DISASSEMBLE INSTRUCTIONS

■ MAIN PCB

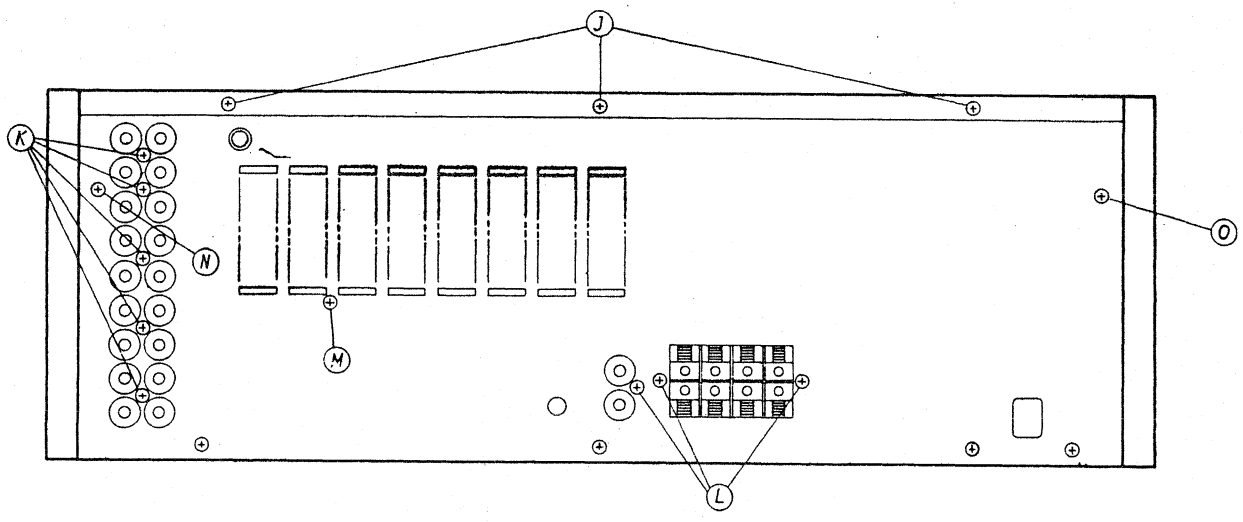
- REMOVE THREE SCREWS "A", THREE SCREWS "J" AND TOP COVER WILL BE REMOVED.
- REMOVE THREE SCREWS "C", THREE SCREWS "G", THREE SCREWS "L", ONE SCREW "M" THE MAIN PCB AND HEAT SINK WILL BE REMOVED.

■ RCA JACK PCB

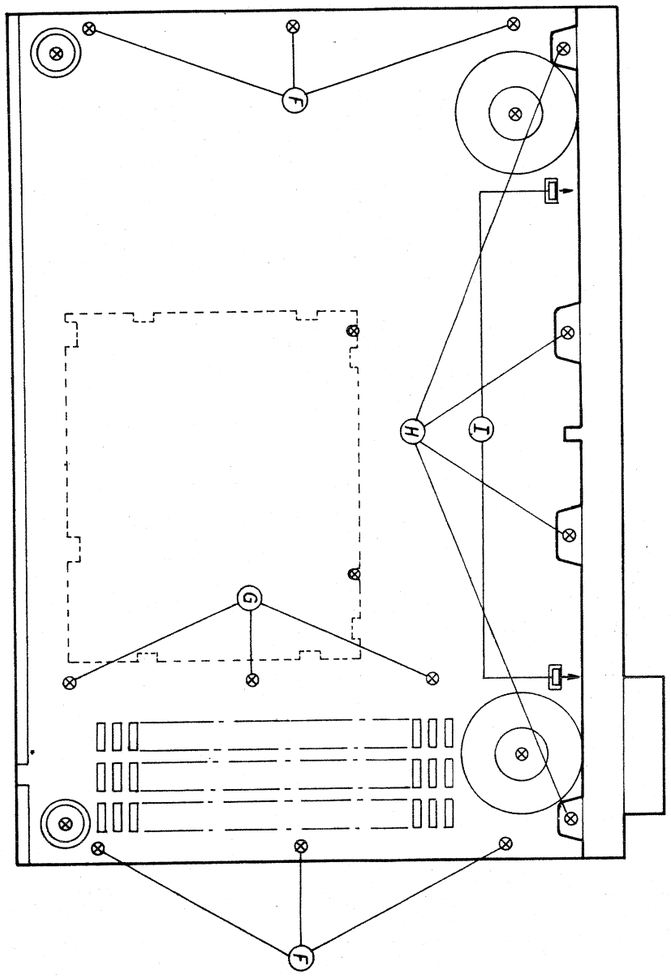
- REMOVE FOUR SCREWS "B" AND SIDE BOARD WILL BE REMOVED.
- REMOVE ONE LOCKER ROUND "E" AND ONE SCREW, FIVE SCREWS "K" THE RCA JACK PCB WILL BE REMOVED.

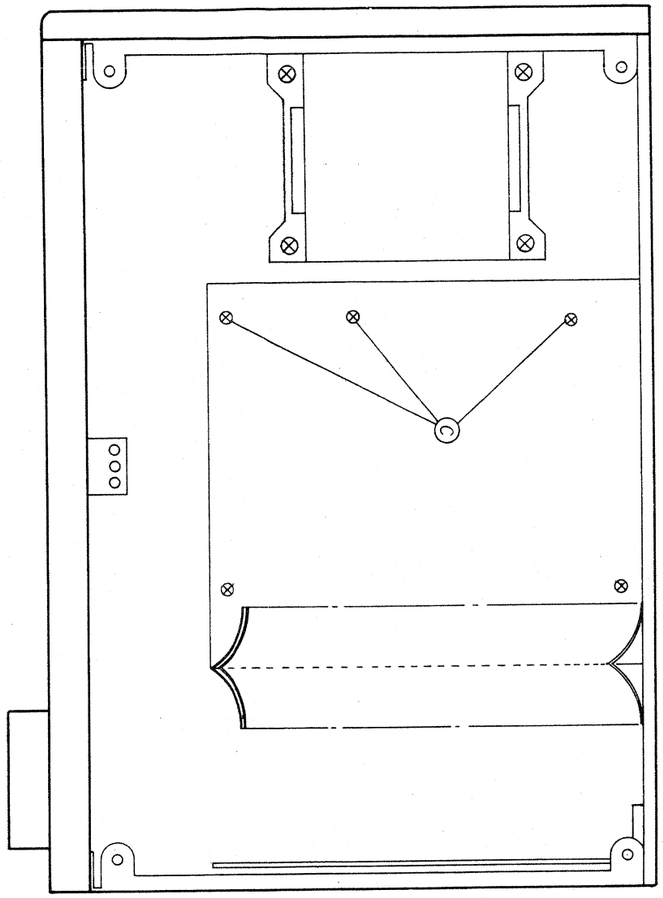
■ PANEL AND BOTTOM

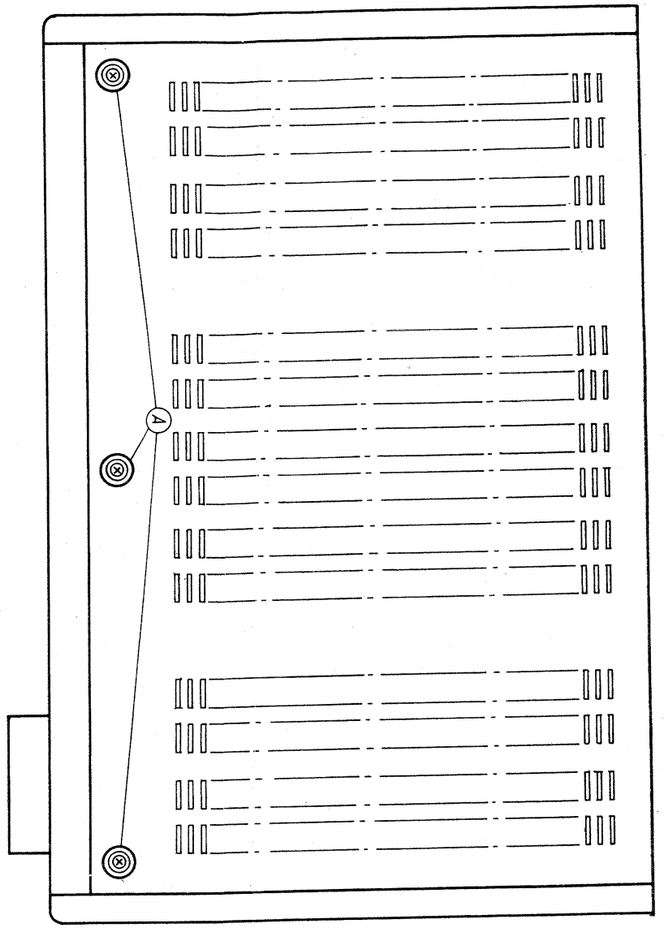
- REMOVE FOUR SCREWS "H" AND TWO PANEL HOOK "I" (↑) PUSH THE PANEL AND BOTTOM WILL BE REMOVED.

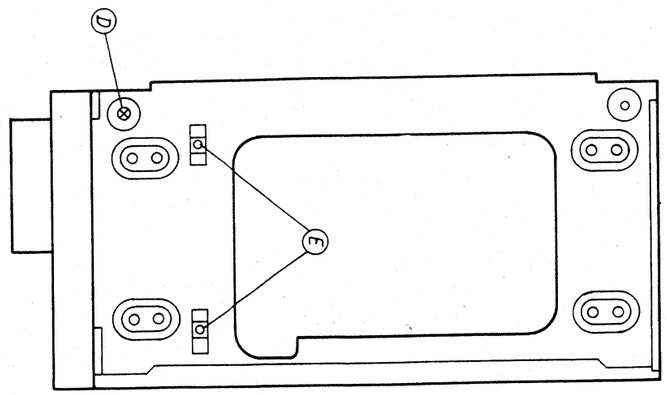


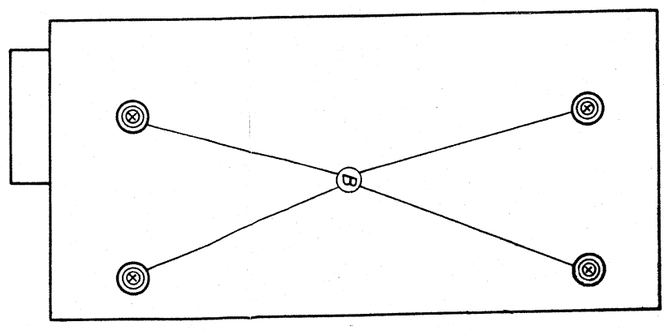
■ DISASSEMBLE INSTRUCTIONS







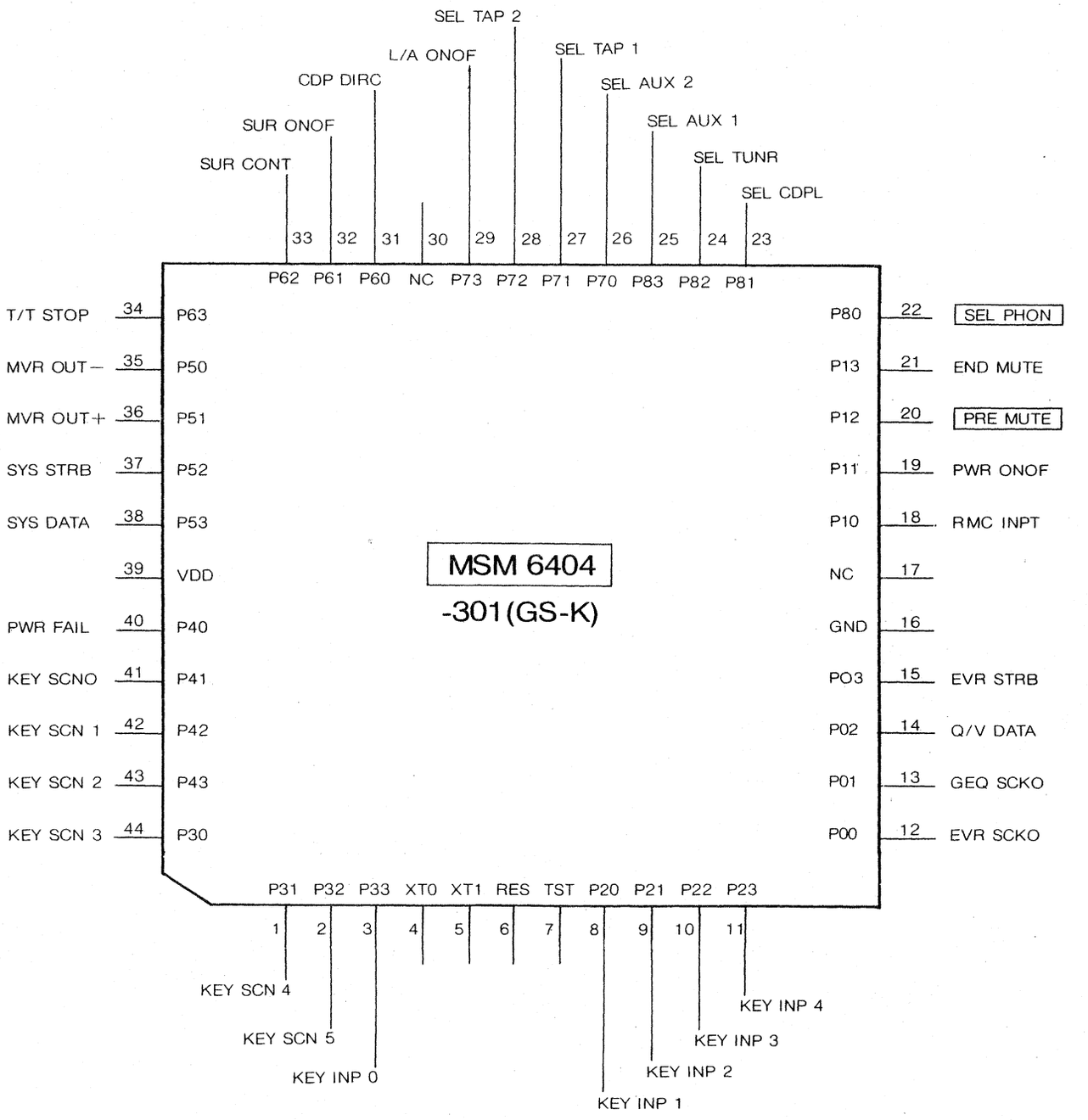




3. IC BLOCK DIAGRAM

■ PORT

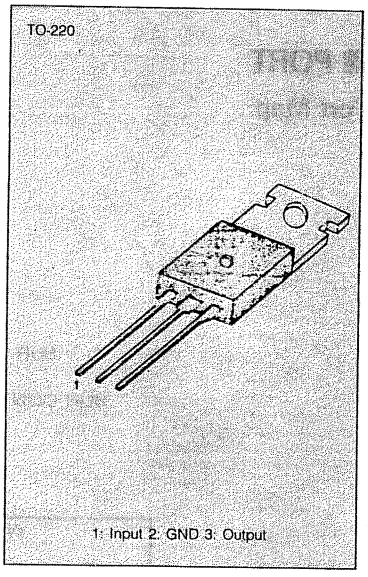
Port Map



■ MC78XX/MC78XXA (LINEAR INTEGRATED CIRCUIT)

3-Terminal 1A Positive Voltage Regulators

The MC78XX/MC78XXA series of three-terminal positive regulators are available in TO-220 package and with several fixed output voltages, making it useful in a wide range of applications. These Regulators can provide local oncard regulation, eliminating the distribution problems associated with single point regulation. Each type employs internal current limiting, thermal shut-down and safe area protection, making it essentially indestructible. If adequate heat sinking is provided, they can deliver over 1A output current. Although designed primarily as fixed voltage regulators, these devices can be used with external components to obtain adjustable voltages and currents.
MC78XXI is characterized for operation from −40°C to +125°C, and MC78XXC from 0°C to +125°C.



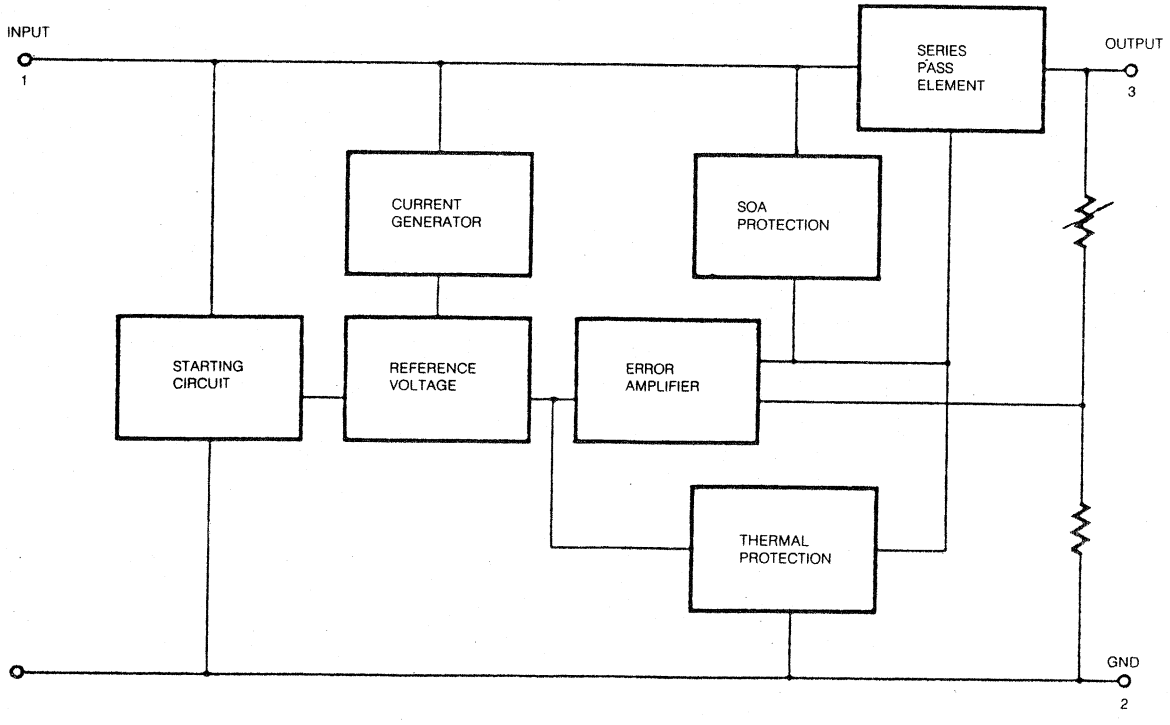
Features

- Output Current up to 1.5A
- Output voltages of 5; 6; 8; 8.5; 9; 10; 11; 12; 15; 18; 24V
- Thermal Overload Protection
- Short Circuit Protection
- Output Transistor SOA Protection
- No external components required
- Output current in excess of 1A
- Industrial and commercial terperature range

Ordering Information

Device	Package	Operating Temperature
MC78XXIT	TO-220	−40~+125°C
MC78XXCT	TO-220	0~+125°C
MC78XXACT	TO-220	

Block Diagram

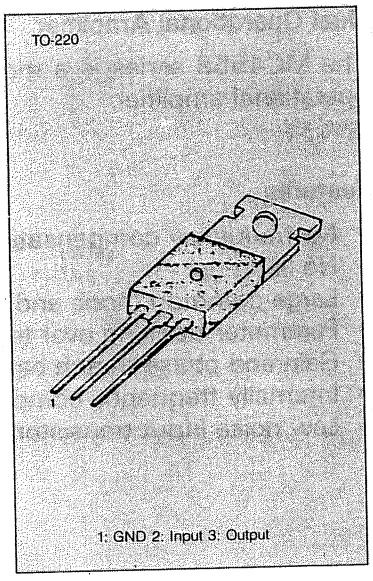


■ MC79XXC SERIES (LINEAR INTEGRATED CIRCUIT)

3-Terminal Negative Voltage Regulator

The MC79XXC series of three-terminal negative regulators are available in TO-220 package and with several output voltages. They canprovides local on-card regulation, eliminating the distribution problems associated with single point regulation; furthermore, having the same voltage options as the MC78XXC positive standard series, they are particularly suited for split power supplies.

If adequate heat sinking is provided, the MC79XXC series can deliver an output current in excess of 1.5A Although designed primarily as fixed voltage regulators, these devices can be used with external components to obtain adjustable voltages and currents.



Features

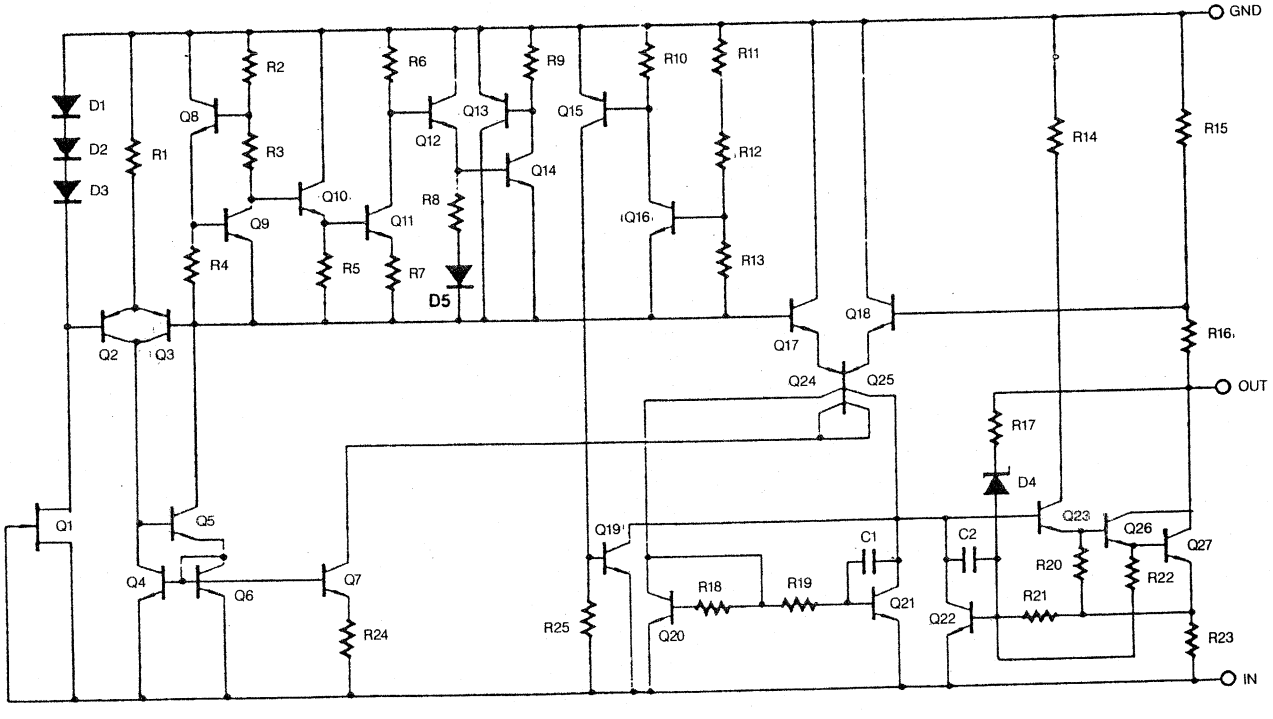
- Output current in excess of 1A
- Output voltages of −2V, −5V, −6V, −8V, −12V, −15V, −18V, −24V
- Internal thermal overload protection
- Short circuit protection
- Output transistor safe-area compensation

Ordering Information

Device	Package	Operating Temperature
MC79XXCT	TO-220	0~125°C
**MC79XXIT	TO-220	−40~125°C

** Under development

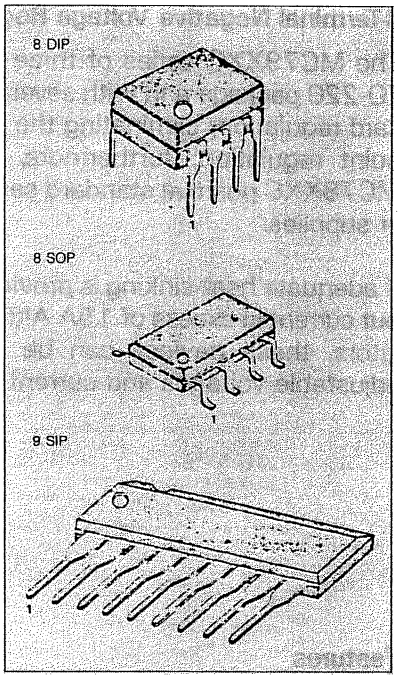
Schematic Diagram



■ MC4558C/AC/I (LINEAR INTEGRATED CIRCUIT)

Dual Operational Amplifier

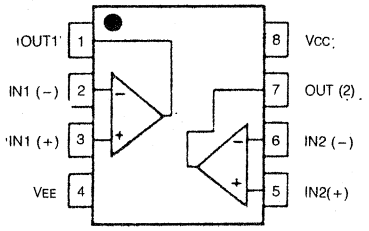
The MC4558 series is a monolithic integrated circuit designed for dual operational amplifier.



Features

- No frequency compensation required.
- No latch-up.
- Large common mode and differential voltage range.
- Parameter tracking over temperature range.
- Gain and phase match between amplifiers.
- Internally frequency compensated.
- Low noise input transistors.

Block Diagram



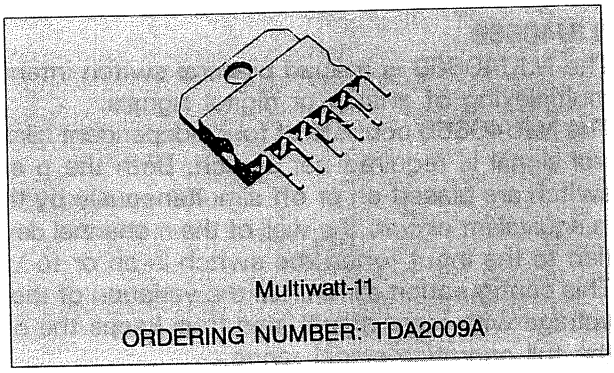
Ordering Information

Device	Package	Operation Temperature
MC4558CN MC4558ACN	8 DIP	0~+70°C
MC4558CD MC4558ACS	9 SIP	
MC4558CD MC4558ACD	8 SOP	
MC4558IN MC4558AIN	8 DIP	−25~+85°C
MC4558IS MC4558AIS	9 SIP	
MC4558ID MC4558AID	8 SOP	

■ TDA 2009A (10+10W SHORT CIRCUIT PROTECTED STEREO AMPLIFIER)

The TDA2009A is class AB dual Hi-Fi Audio power amplifier assembled in Multiwatt® package, specially designed for high quality stereo application as Hi-Fi and music centers. Its main features are:

- High output power (10+10W min. @d = 1%)
- High current capability (up to 3.5A)
- AC short circuit protection
- Thermal overload protection
- Space and cost saving: very low number of external components and simple mounting thanks to the Multiwatt® package.



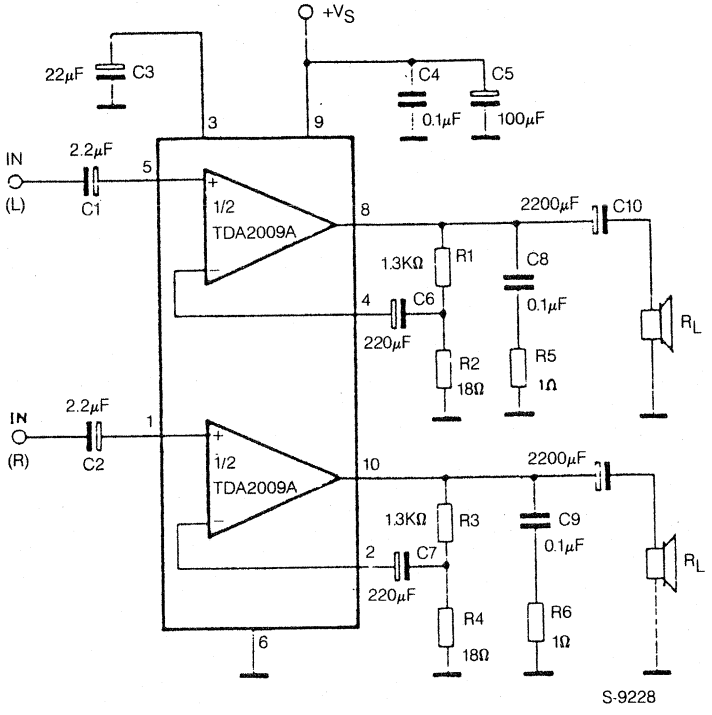
Multiwatt-11

ORDERING NUMBER: TDA2009A

Absolute Maximum Ratings

Vs	Supply voltage	28	V
Io	Output peak current (repetitive f ⩾ 20Hz)	3.5	A
Io	Output peak current (non repetitive, t=100μS)	4.5	A
Ptot	Power dissipation at Tcase = 90°C	20	W
Tstg, Tj	Storage and junction temperature	−40 to 150	°C

Test Circuit



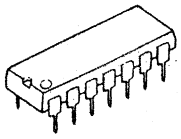
■ CMOS QUAD BILATERAL SWITCH

NJU4066B

The NJU4066B is a quad bilateral switch intended for the transmission or multiplexing of analog or digital signals.

The NJU4066B consists of four independent bilateral switches. A single control signal is required per switch. Both the p and the n device in a given switch are biased on or off simultaneously by the control signal. At shown in equivalent circuit, the well of the n-channel device on each switch is either tied to the input when the switch is on or to Vss when the switch is off. This configuration eliminates the variation of the switch-transistor threshold voltage with input signal, and thus keeps the on-state resistance low over the full operating-signal range.

The advantages over single-channel switches in clude peak input-signal voltage swings equal to the full supply voltage, and more constant on-state impedance over the input-signal range.

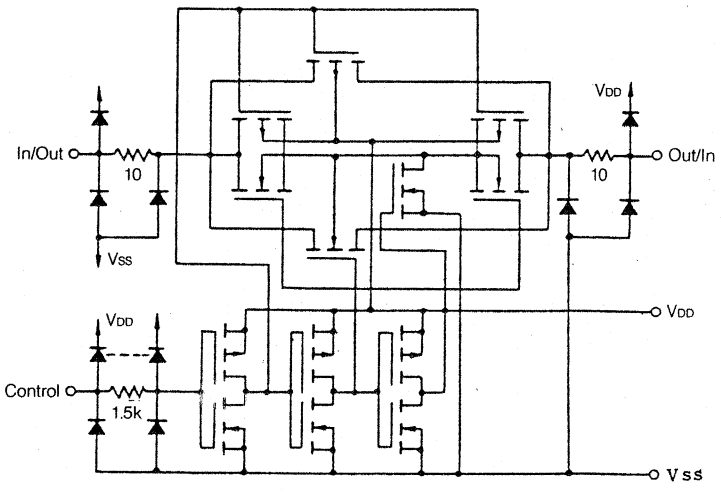


Package Outline

Absolute Maximum Ratings (Ta = 25°C)

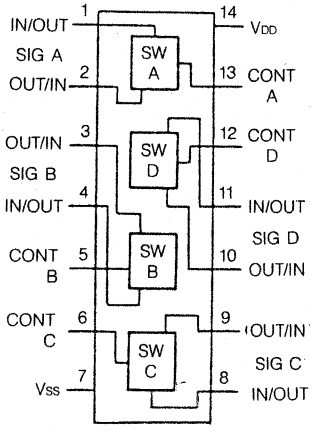
DC Supply Voltage Range	V_{DD}	−0.5 ~ 20V
Input Voltage Range	V_{IN}	−0.5 ~ V_{DD} + 0.5
Output Voltage Range	V_O	−0.5 ~ V_{DD} + 0.5
DC Input Current	± I_{IN}	± 10mA
DC Output Current	± I_O	± 10MA
Power Dissipation Per Package	P_D D Type (M Type)	500mW (200mW)
Power Dissipation Per Gate		100mW (100mW)
Operating Temperature Range	Topr	−40 ~ +85°C
Storage Temperature Range	Tstg	−65 ~ +150°C

Equivalent Circuit



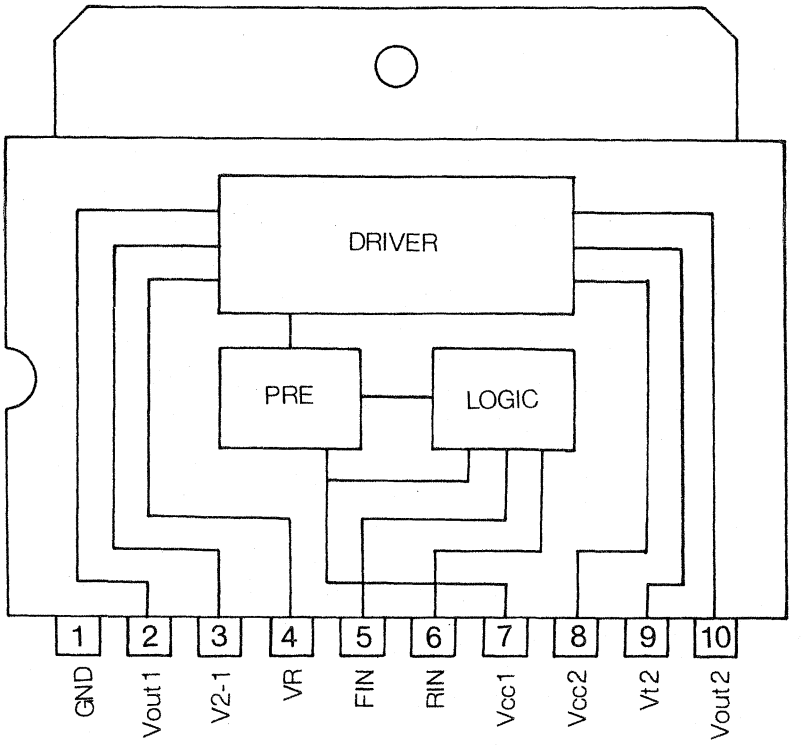
Connection Diagram

(Top View)



A ~ D: Controll input
IN/OUT: Signal IN/OUT
OUT/IN: Signal IN/OUT

■ BA 6209



■ STK4302 SERIES

- Single Power Supply • 2ch Amplifier in a Packaging
- Other specification Tipical Value Icco = 60mA, V_{NO} = 0.5mA

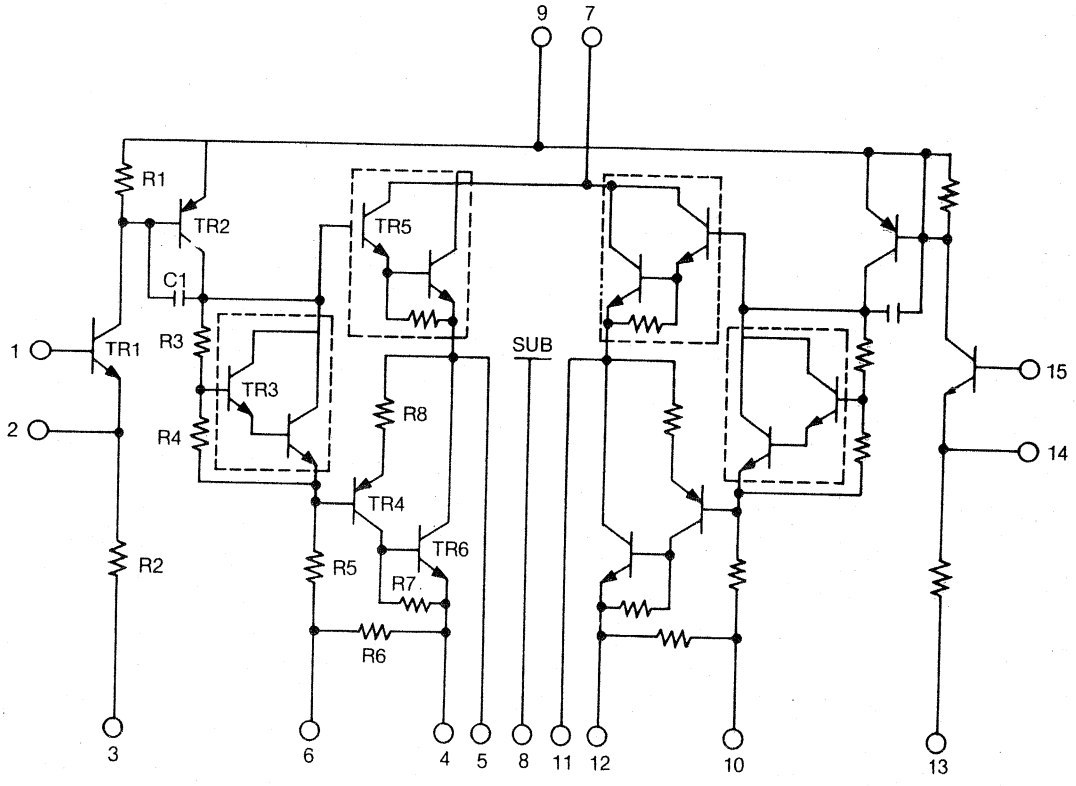
Type No Series Name	Maximum Ratings		Recommended Operation Condition			Operation Characteristics (Vcc: Recommended Condition RL = 8Ω 1 KHz							
	Vcc max	Tc max	Supply Vol (Vcc) (RL = 8Ω)	Supply Vol (Vcc) (RL = 4Ω)	Closed Loop Gain	Closed Loop Gain	Po max /RL = 8Ω		Po max /RL = 4Ω		THD Po = 0.1	PBW THD = 1%	Po
							min	THD	min	THD	max	min	
	V	°C	V	V	dB	dB	W	%	W	%	%	Hz	W
STK 4332	32	125	23	21	26~45	40	5	1.0	7	1.0	0.5	60~10K	2.5
STK 4352	39	125	27	25	26~45	40	7	1.0	10	1.0	0.5	40~20K	3.5
STK 4362	50	125	33	28	26~45	40	10	1.0	12	1.0	0.3	30~20K	5.0
STK 4372	54	125	35	31	26~45	40	12	1.0	14	1.0	0.3	30~20K	6.0
STK4392	56	125	39	36	26~45	40	15	1.0	20	1.0	0.2	30~20K	7.5
STK 4412	63	125	44	40	26~45	40	20	1.0	20	1.0	0.2	30~20K	10.0
STK 4332	70	125	49	44	26~45	40	25	1.0	30	1.0	0.2	30~20K	12.5

Note 1. At 4Ω load use, change a resistor from 390K Ω to 330KΩ in an application circuit (1) in order to compensate unbalanced clipping. APPLICATION (1) 390KΩ = 330KΩ
APPLICATION (2) 100KΩ = 110KΩ

Note 2. Adda capacitor of 0.1 to 1 μF between pin 7 of IC and ground, in order to improve an oscillation stability.
(e.g. in use of voltage gain below 30dB.)

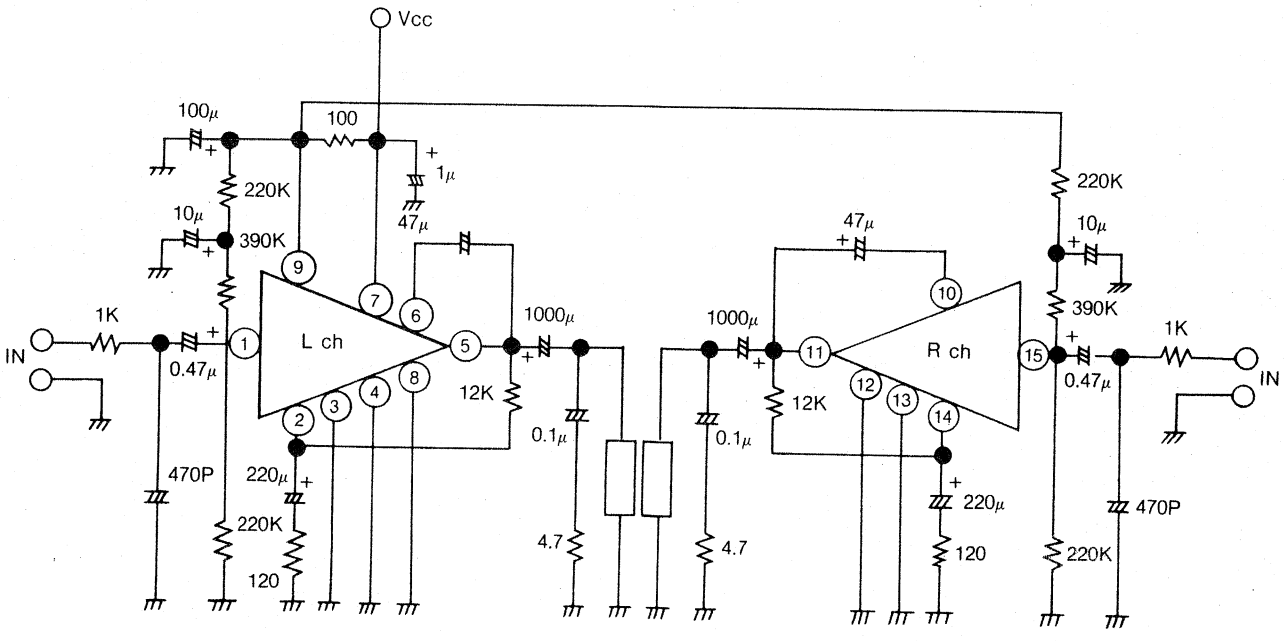
Note 3. •Small and slim package.
•Pin compatible with STK430 series heretofore in use.
•Capable of guaranteing case temperature 125°C
•Thereby reducing heat sink.
•Excellent cost performance.

■ EQUIVALENT CIRCUIT

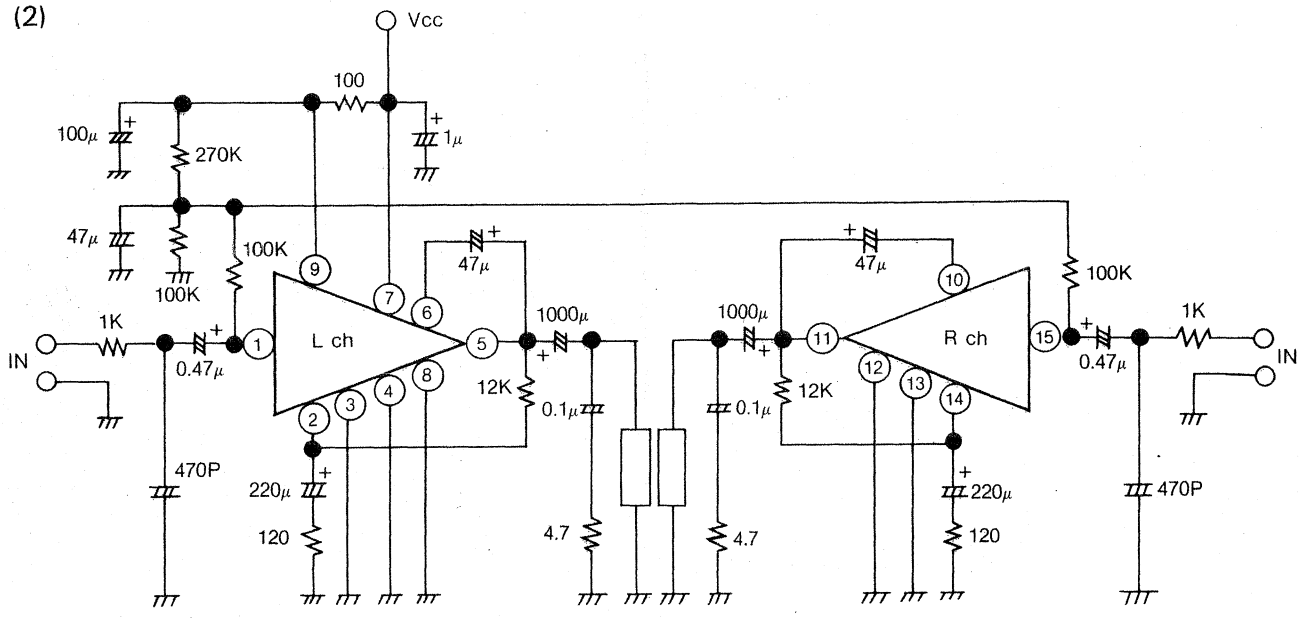


■ APPLICATION

(1)

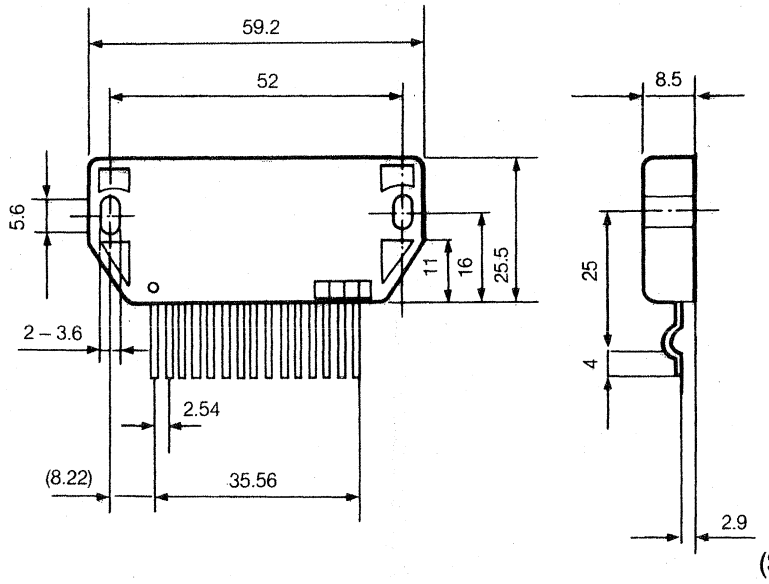


(2)



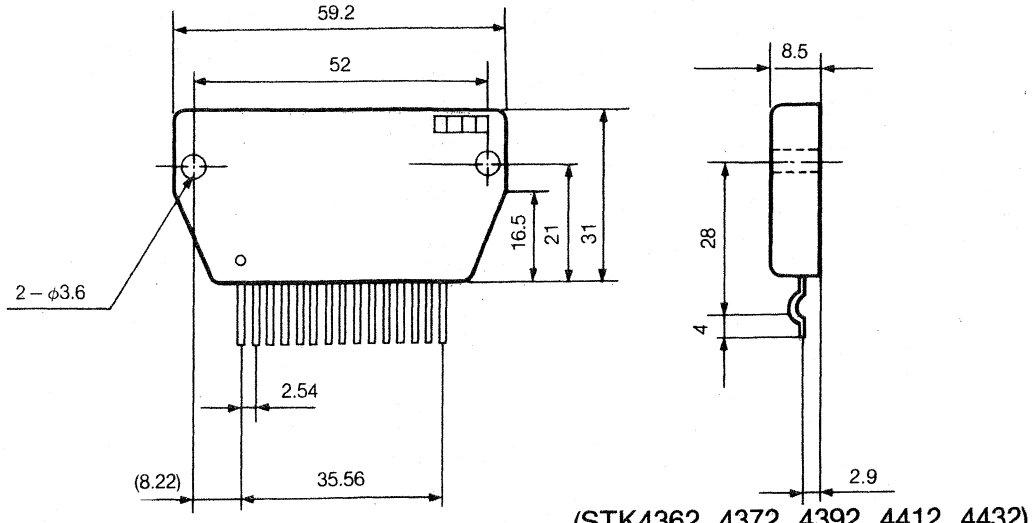
■ PACKAGE DIMENSION

(1)



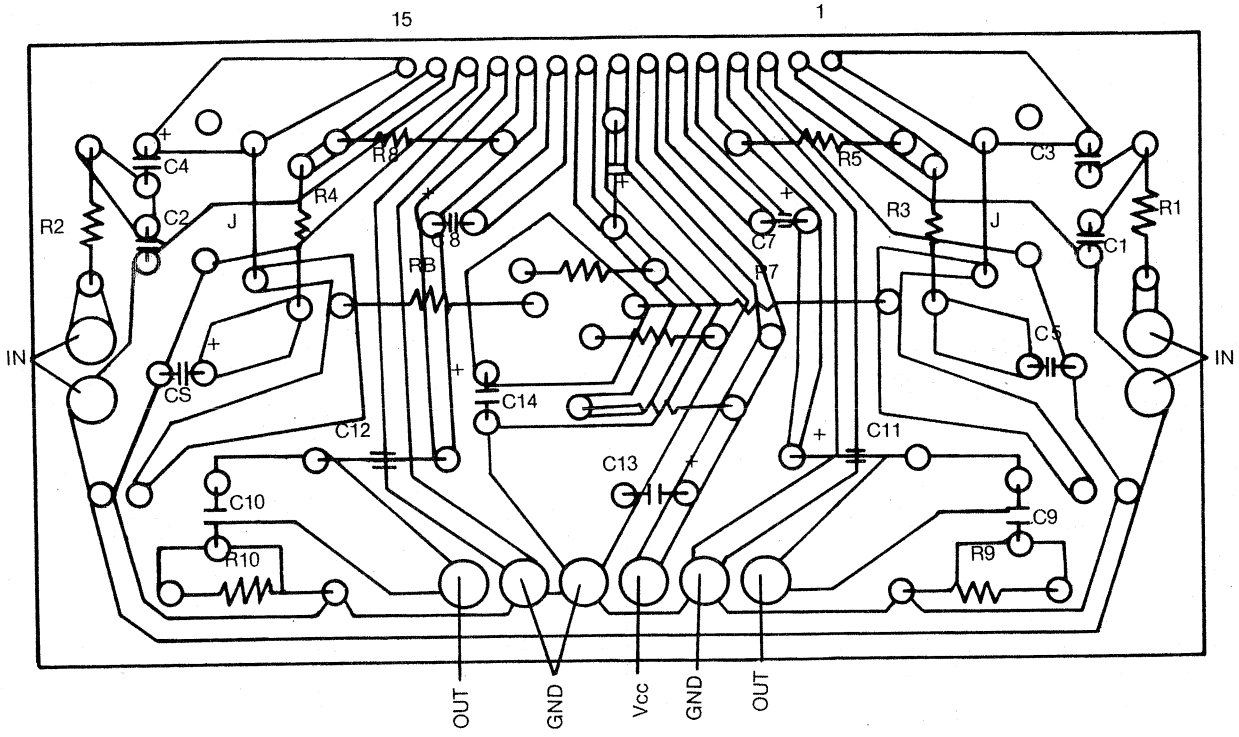
(STK4332, 4352)

(2)



(STK4362, 4372, 4392, 4412, 4432)

■ BACK VIEW

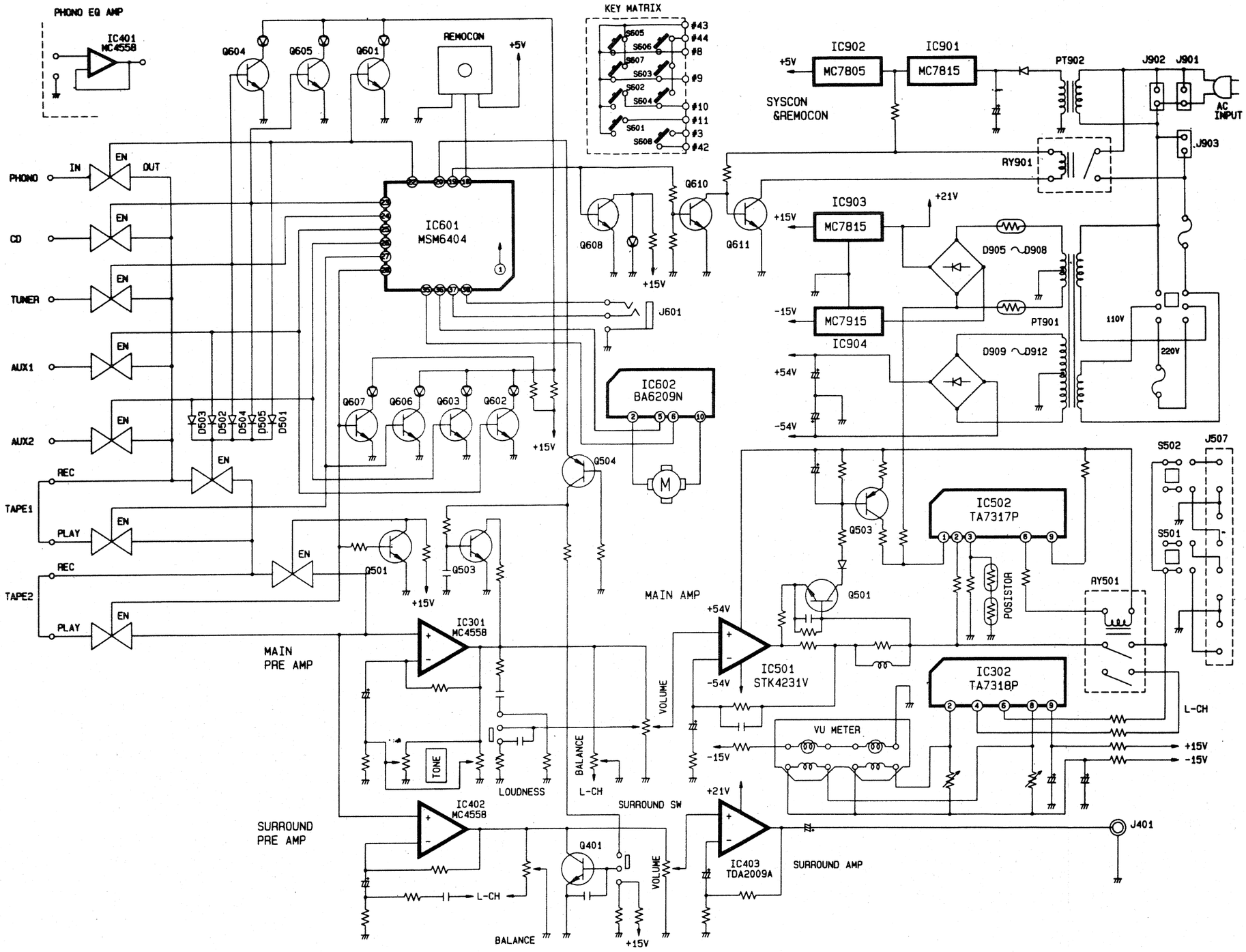


R1,R2	1KΩ	C1,C2	470P
R3,R4	120Ω	C3,C4	0.47μ
R5,R6	12KΩ	C5,C6	220μ
R7,R8	100KΩ	C7,C8	47μ
R9,R10	4.7Ω	C9,C10	0.1μ
R11	270KΩ	C11,C12	1000μ
*R12	100KΩ	C13	1μ
R13	100Ω/½W	C14	47μ
		C15	100μ

J: Jumping Wire

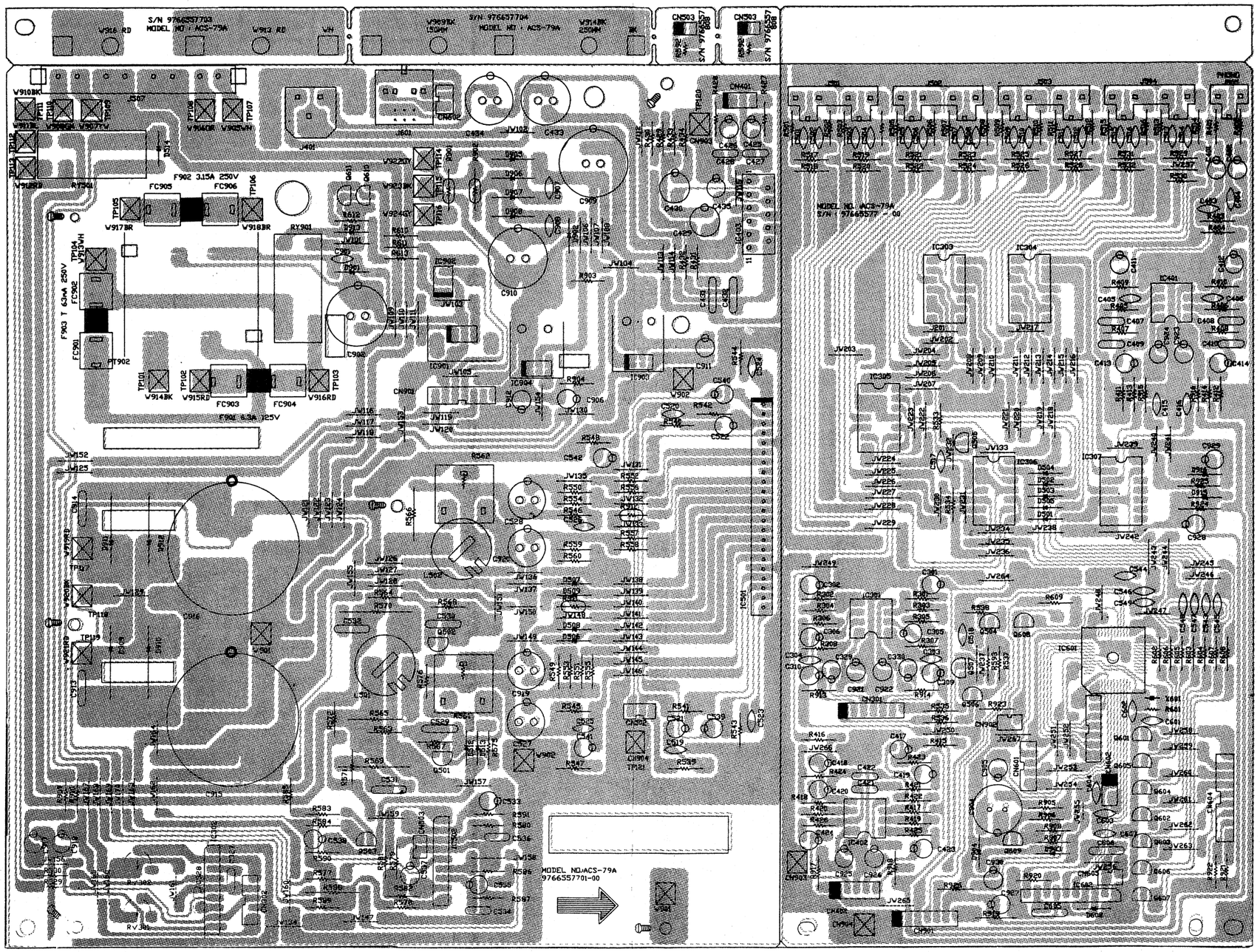
*R12 = 110KΩ (at RL = 4Ω)
This PCB is for Application (2)

4. BLOCK DIAGRAM

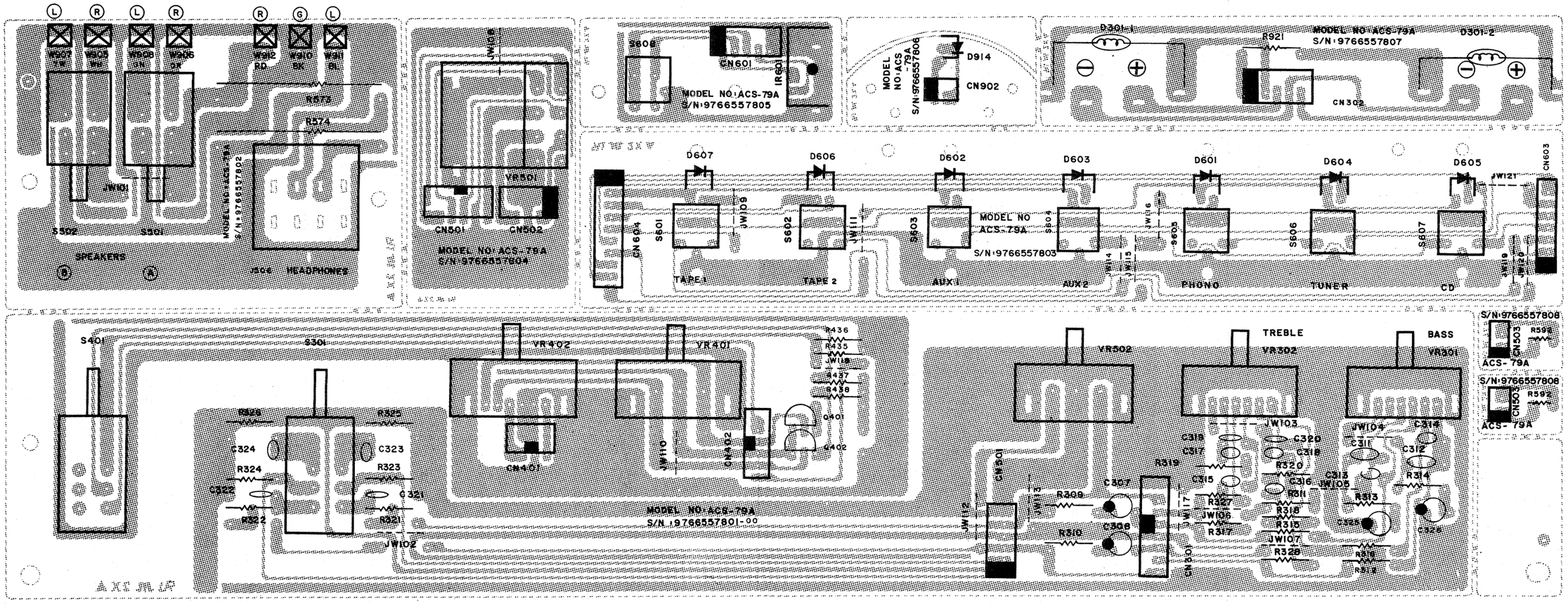


5. PCB PATTERN DIAGRAM

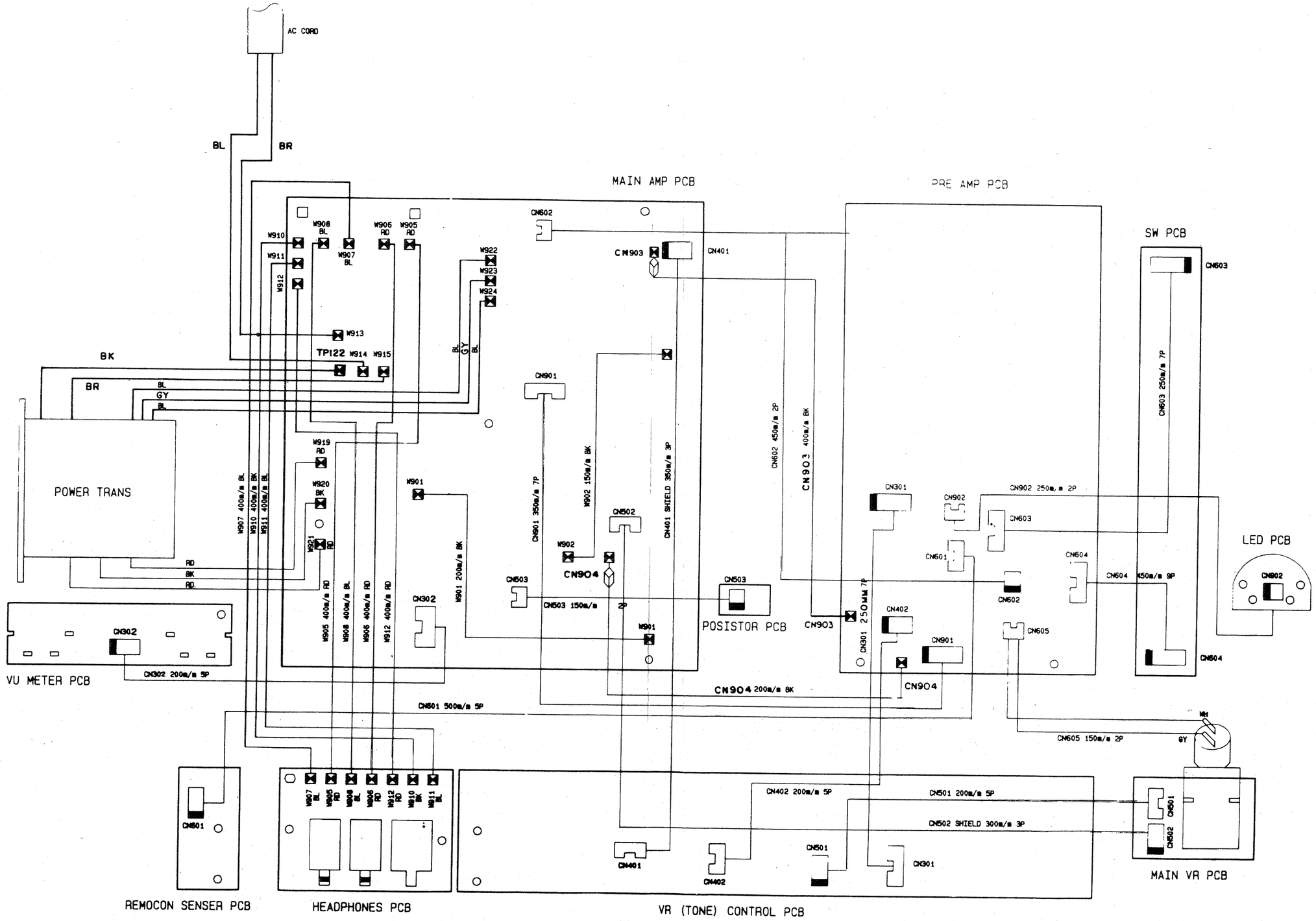
■ MAIN PCB



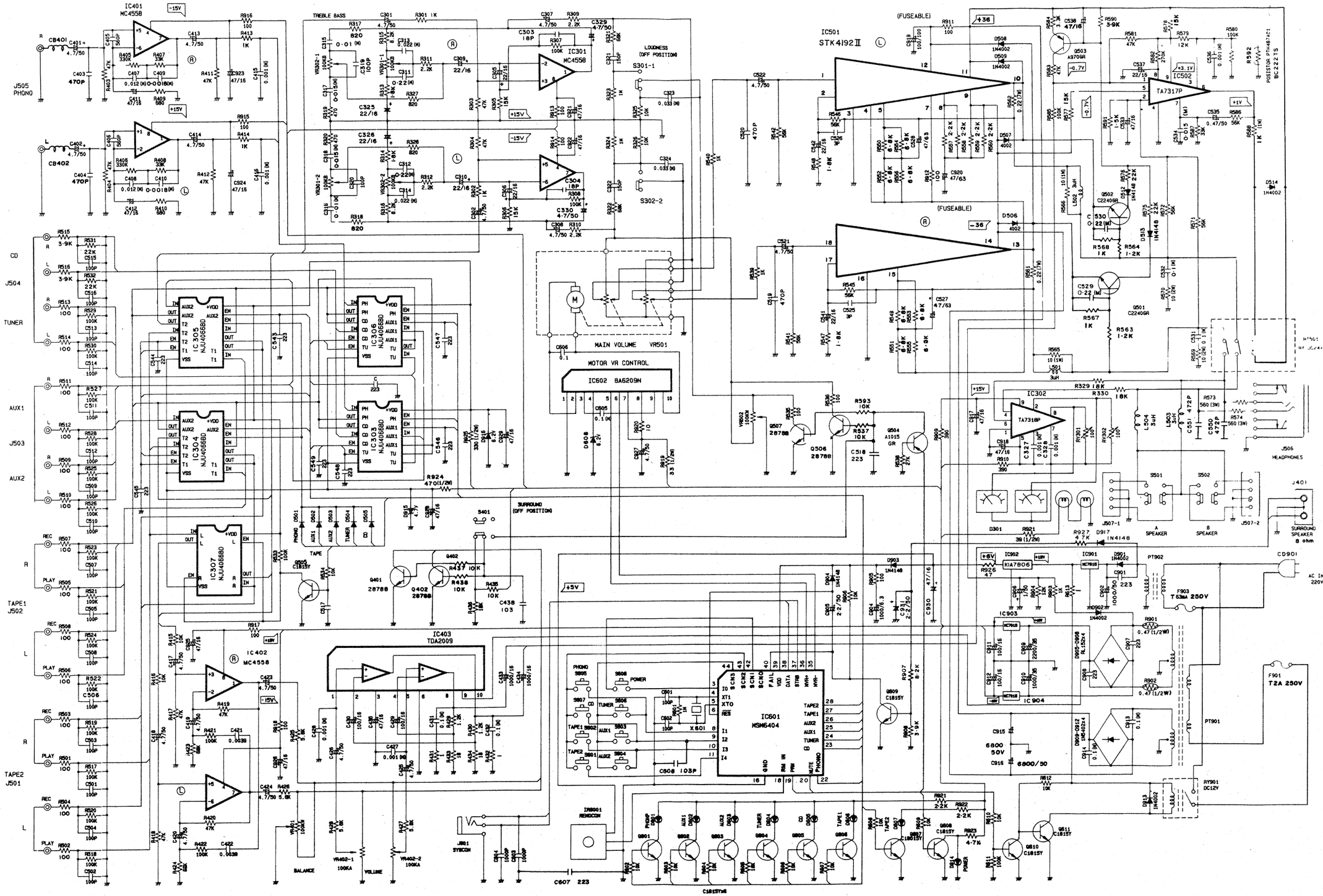
■ SUB PCB


L
R
L
R
R
G
L
RW01 W
RW03 Rd
RW05 Bl
RW06 Bk
RW02 SD
RW04 Gr
RW01 Rt
R572
R574
JW105
JW106
VR501
CN501
CN502
MODEL NO:ACS-79A
S/N:9766557804
S502
S501
SPEAKERS
PC4 HEADPHONES
S606
CN601
IR601
MODEL NO:ACS-79A
S/N:9766557805
MODEL NO:ACS-79A
S/N:9766557806
D914
CN902
D301-1
R921
MODEL NO ACS-79A
S/N:9766557807
D301-2
CN302
D607
D606
D602
D603
D601
D604
D605
JW121
CN603
CN604
S601
S602
S603
S604
S605
S606
S607
JW108
JW111
JW114
JW115
JW116
MODEL NO
ACS-79A
S/N:9766557803
TAPE 1
TAPE 2
AUX 1
AUX 2
PHONO
TUNER
CD
JW119
JW120
S/N:9766557808
CN305
R592
ACS-79A
S/N:9766557806
CN304
R592
ACS-79A
S401
S301
VR402
VR401
R436
R435
JW118
R437
R438
Q401
Q402
CN401
JW109
CN402
R326
R325
C324
C323
R324
C322
C321
R323
R321
R322
JW102
MODEL NO:ACS-79A
S/N:9766557801-00
VR502
TREBLE
VR302
BASS
VR301
JW103
JW104
C319
C317
C320
C318
C316
C315
C311
C312
C313
C314
R319
R320
R311
R318
R315
R328
R313
R314
C325
C326
R316
R317
JW105
JW106
JW107
C307
C308
R309
R310
JW110
JW112
JW113
CN301

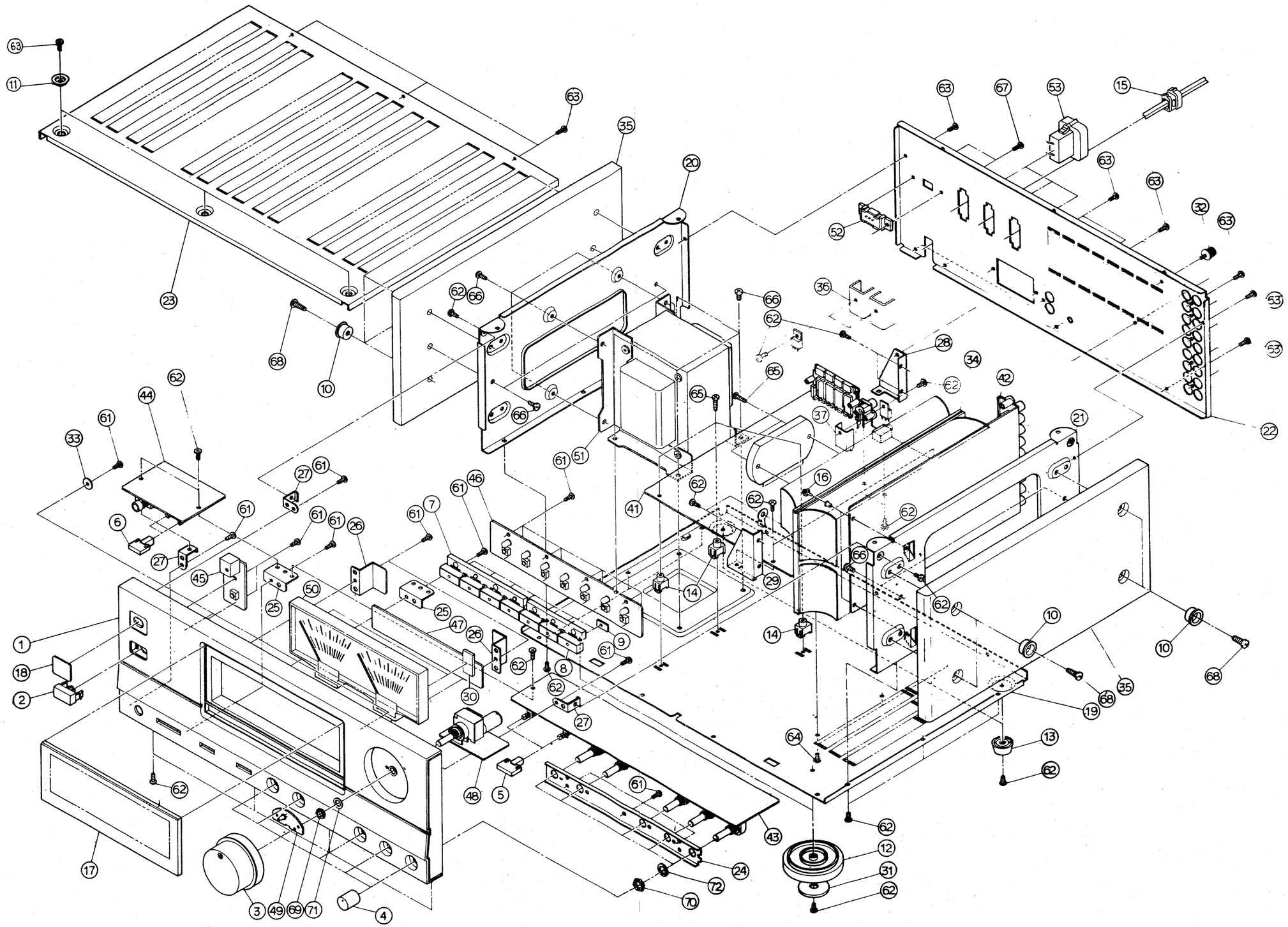
6. WIRING DIAGRAM



7. SCHEMATIC DIAGRAM



8. EXPLODED VIEW



9. PARTS LIST

■ ACS-79A EXPLODED INDEX

NO.	PARTS NAME	CODE NO.	DESCRIPTION	Q'TY	REMARK
1	PANEL FRONT	9760310400	MIPS (MI-250)	1	
2	KNOB POWER	9761323600	ABS	1	
3	KNOB VOLUME	9761323200	ABS	1	
4	KNOB ROTARY	9761323501	ABS	5	
5	KNOB PUSH A	9761323000	ABS	2	
6	KNOB PUSH B	9761323100	ABS	2	
7	KNOB FUNCTION A	9761323300	ABS	1	
8	KNOB FUNCTION B	9761323301	ABS	1	
9	INDICATOR FUNCTION	9761700300	PMMA	7	
10	BUSHING SIDE	9764001600	ABS	8	
11	BUSHING TOP	9764001500	ABS	3	
12	LEG A	9760801200	ABS HOT STAMP	2	
13	LEG	9760800100	ABS	2	
14	SUPPORT PCB	9752502300	ABS	3	
15	STOPPER AC CORD	9762300600	NYLON 66	1	
16	RIVET-P	9733400100	NYLON 66	2	
17	WINDOW REMOTE	9761604300	PC 0.5T SILK	1	
18	WINDOW METER	9761604400	ACRYL SHEET 5.0T SILK	1	
19	CHASSIS BOTTOM	9760605000	SECC 1.0T	1	
20	CHASSIS SIDE L	9760604600	SECC 1.0T	1	
21	CHASSIS SIDE R	9760604700	SECC 1.0T	1	
22	CHASSIS BACK	9760604500	SECC 1.0T SPRAY SILK	1	
23	COVER TOP	97D0411101	PVC LAMINATED SHEET 0.8T	1	
24	BRKT VR	9762413900	SECC 1.0T	1	
25	BRKT TOP	97J2413400	SECC 1.0T	2	
26	BRKT METER	9762413600	SECC 1.0T	2	
27	BRKT JACK	9762413700	ESCC 1.0T	3	
28	BRKT HEAT SINK L	9762413800	SECC 1.0T	1	
29	BRKT HEAT SILK R	9762413801	SECC 1.0T	1	
30	CUSHION LCD	9764200600	RUBBER SPONGE	2	
31	SPACER LEG	9762800600	FELT	2	
32	TERMINAL GROUND			1	
33	WASHER PLAIN	9733101300	PW T0.8×D3.2×D12	2	
34	HEAT SINK	9764401700	AL	1	
35	BOARD SIDE	9760703400	MDF 15T VINYL OVER LAY	2	

NO.	PARTS NAME	CODE NO.	DESCRIPTION	Q'TY	REMARK
36	HEAT SINK B	9734400500	AL PLATE 2.0T	2	
37	HEAT SINK TR	9714402100	A1100S	1	
38					
39					
40					
41	PCB POWER	9766557701		1	
42	PCB PRE	9766557702		1	
43	PCB VR	9766557801		1	
44	PCB H/PHONE	9766557802		1	
45	PCB REMOCON	9766557805		1	
46	PCB FUNCTION	9766557803		1	
47	PCB METER	9766557807		1	
48	PCB MAIN VR	9766557804		1	
49	PCB LED	9766557806		1	
50	METER			1	
51	POWER TRANS			1	
52	VOLTAGE SELECTOR			1	
53	OUT LET			3	
54					
55					
56					
57					
58					
59					
60					
61	SCREW TAPTITE	7173260811	TT2 BIN 2.6×8 MFZN	22	
62	SCREW TAPTITE	7173300811	TT2 BIN 3×8 MFZN	31	
63	SCREW TAPTITE	7173300812	TT2 BIN 3×8 BK	21	
64	SCREW TAPTITE	7173301011	TT2 BIN 3×10 MFZN	3	
65	SCREW TAPTITE	7173302011	TT2 BIN 3×20 MFZN	5	
66	SCREW TAPTITE	7173400811	TT2 BIN 4×8 MFZN	12	
67	SCREW TAPTITE	7173400812	TT2 BIN 3×8 BK	2	
68	SCREW TAPTITE	7173401612	TT2 BIN 4×16 BK	8	
69	NUT HEX		M7	1	
70	NUT HEX		M9	5	
71	WASHER PLAIN		M7	1	
72	WASHER PLAIN		M9	5	